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CLAIMS DETAILED DESCRIPTIONTECHNICAL FIELD PRIOR ARTEFFECT OF THE INVENTIONTECHNICAL PROBLEM MEANSOPERATION EXAMPLEDESCRIPTION OF DRAWINGSDRAWINGS

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]

[Industrial Application]This invention relates to the network system of a digital copier, and in detail, When copying the number of sheets which can apply to the network technology of a digital copier, sets to one set of DF and does not go out in particular, Print operation can be performed for the manuscript which divided all the manuscripts into some DF's, set them, and was divided and set to each DF with one printer, and it is related with the network system of the digital copier which can raise operativity and working efficiency.

[0002]

[Description of the Prior Art]Two or more image signal output means which

Drawing selection Representative draw

[Translation done.]

output the picture signal of an image scanner, a word processor, a personal computer, etc., etc. to the conventional image forming system. The system which combined the image forming means of two or more printers which form picture images respectively based on each picture signal outputted from each of those image signal output means, and are recorded on a recording form is proposed.

[0003]Conventionally, two or more picture signal output units and two or more image forming devices are organically combined by various functions, such as record of picture information, memory, and communication, and there are some which were reported by JP,2-21190,B about the image processing system which can be freely accessed from arbitrary places to other places. This conventional image processing system is provided with the memory measure which memorizes the image data received from the external instrument by at least 1 screen. Based on the line synchronizing signal generated from a recording device synchronizing with each scan of the beam on a recording material, the image data which is received and is memorized by the memory measure is constituted so that a DMA transfer may be carried out for every line via a bus line to a recording device.

[0004]For this reason, while being able to supply the image data received regardless of the recording operation speed of a recording device to a recording device to compensate for the recording operation of a recording device, It has the advantage that image recording based on the image data which received from the external instrument can be performed at high speed by repeating and scanning a recording material top by a beam. Conventionally, a data copy machine is connected and there are some which were reported, for example by JP,5-304575,A about the digital reproducing unit which can raise copying operation speed.

[0005]This conventional digital reproducing unit outputs a copy

control signal and a digital image signal to the transmission medium to which other digital reproducing units are connected, Other copy control signals and digital image signals of a digital reproducing unit are inputted from a means to perform the same copying operation as other digital reproducing units, and the transmission medium to which other digital reproducing units are connected, One side or both sides with a means to perform the same copying operation as other digital reproducing units is had and constituted. For this reason, by the addition of easy hardware, one manuscript is made to copy by two or more digital reproducing units, and it has the advantage that shortening of an extensive copy and copy working hours can be performed.

[0006]

[Problem(s) to be Solved by the Invention]However, in the network system of the conventional digital copier which was described above. In spite of having connected two or more digital copiers via the network with much trouble, the time of copying the number of sheets which sets to one set (manuscript feeder) of DF, and does not go out -- every [the number of sheets from all the manuscripts which can be copied] -- it divided one by one, and in order to have to set and copy to one set of DF, there was a problem that it was troublesome, operativity was bad and working efficiency fell.

[0007][Then, when copying the number of sheets which sets this invention to one set of DF, and does not go out, Print operation can be performed for the manuscript which divided all the manuscripts into some DFs, set them, and was divided and set to each DF with one printer, and it aims at providing the network system of the digital copier which can raise operativity and working efficiency.

[0008]

[Means for Solving the Problem]In a network system of a digital copier constituted by the invention according to claim 1 establishing a means of communication which communicates a

motion command and picture information to at least two or more digital copiers, A manuscript which has a manuscript sheet feeding device in each digital copier, and was set in a manuscript sheet feeding device of a digital copier by the side of an operation machine, It has a manuscript processing means to process automatically a manuscript set in a manuscript sheet feeding device of a digital copier on a network of different others from an operation machine as a series of manuscripts.

[0009]The invention according to claim 2 has a manuscript processing order control means which processes preferentially a manuscript set in said manuscript sheet feeding device of said digital copiers other than said operation machine in an invention given in above-mentioned claim 1. In an invention of above-mentioned claim 1 and two statements, the invention according to claim 3 has a skip operation means to skip automatically as what is not set up beforehand and to operate, when there is no manuscript in a digital copier set up if a manuscript is processed.

[0010]When there is no manuscript in a digital copier set up in an invention given in above-mentioned claims 1 thru/or 3 if a manuscript is processed, the invention according to claim 4, When there is a manuscript stand which checks a set of a manuscript at the time of operation execution, and is not set, it has a warning means of which it warns without performing operation. In an invention given in above-mentioned claims 1 thru/or 4, the invention according to claim 5 has a warning means which interrupts and warns of operation, when starting manuscript feeding with each digital copier after operation execution, and a set of a manuscript is checked and it is not set.

[0011]The invention according to claim 6 has a switching means which changes a system according to claim 3 and the system according to claim 4 in an invention given in above-mentioned claims 1 thru/or 5. In an invention given in above-mentioned claims 1

thru/or 6, the invention according to claim 7 has an informing means which reports that the remote control of the manuscript is carried out, when said digital copiers other than said operation machine perform manuscript feeding.

[0012]

[Function]In the invention according to claim 1, in each digital copier, have a manuscript sheet feeding device, and by a manuscript processing means. It constitutes so that the manuscript set in the manuscript sheet feeding device of the digital copier on the network of the manuscript set in the manuscript sheet feeding device of the digital copier by the side of an operation machine and different others from an operation machine may be automatically processed as a series of manuscripts.

[0013]For this reason, when copying the number of sheets which sets to one set of DF and does not go out, the manuscript which divided all the manuscripts into some DFs, set them, and was divided and set to each DF is read automatically, Since print operation can be performed with one printer, operativity and working efficiency when copying a manuscript especially with much number of sheets can be raised. Between the manuscripts especially divided like one side -> double-side mode, when relation is important, a copy mistake can be prevented by easy operation.

[0014]It constitutes from an invention according to claim 2 so that the manuscript set in the manuscript sheet feeding device of digital copiers other than an operation machine may be preferentially processed by a manuscript processing order control means. For this reason, since the manuscript of digital copiers other than an operation machine can be processed preferentially, occupation time of the copy machine used in a remote can be lessened as much as possible.

Therefore, since the operation efficiency of the whole system can be raised, a system with high efficiency is realizable.

[0015]When there is no manuscript in the digital copier set up if a manuscript

is processed, it constitutes from an invention according to claim 3 so that it may skip automatically as what is not set up from the first and may operate by a skip operation means. For this reason, since it can skip automatically as what is not set up from the first and can operate when there is no manuscript in the digital copier set up if a manuscript is processed, It is made not to stop operation, and when DF whose actual manuscript number of sheets of what mode setting carried out is unnecessary occurs, it can be made to be able to operate, without resetting up the mode, and workability can be efficiently improved, rather than displaying warning etc. on the person who became skillful in operation conversely. And since it can finish without preparing an alarm display etc., the cost cut of an indicator can be aimed at.

[0016]When there is no manuscript in the digital copier set up if a manuscript is processed and there is a manuscript stand which checks the set of a manuscript at the time of operation execution, and is not set, it constitutes from an invention according to claim 4 so that it may warn by a warning means, without performing operation. For this reason, since it can warn without performing operation when there is a manuscript stand which checks the set of a manuscript at the time of operation execution, and is not set, a manuscript set mistake can be prevented beforehand and miscopying can be prevented. The order of a copy is out of order especially, and it is effective especially at the times, such as one side -> double-side mode.

[0017]When starting manuscript feeding with each digital copier after operation execution, and the set of a manuscript is checked and it is not set, it constitutes from an invention according to claim 5 so that it may interrupt and warn of operation by a warning means. For this reason, since it can interrupt and warn of operation when starting manuscript feeding with each digital copier after operation execution, and the set of a manuscript

is checked and it is not set, miscopying by what will remove the manuscript by persons other than an operator can be prevented. The order of a copy is out of order especially, and it is effective especially at the times, such as one side -> double-side mode.

[0018]A switching means constitutes from the invention according to claim 6 so that a system according to claim 3 and the system according to claim 4 may be changed. For this reason, since the system of claims 3 and 4 can be changed suitably, operational operation can be suitably chosen according to a using form, and operativity can be raised efficiently.

[0019]When digital copiers other than an operation machine perform manuscript feeding, it constitutes from an invention according to claim 7 so that an informing means may report that the remote control of the manuscript is carried out. For this reason, since it can report that the remote control of the manuscript is carried out when digital copiers other than an operation machine perform manuscript feeding, an operation mistake can be prevented.

[0020]

[Example]Hereafter, the example of this invention is described with reference to drawings. Explanation of the term used for below in common by this example and a definition are performed. First, an image reader and an image read section are explained. The image reader used with a digital copier irradiates a manuscript with a light source, receives the catoptric light reflected with the manuscript, and changes it into an electrical signal with a solid imaging element (CCD), and the device which has the function to perform required image processing is used.

[0021]Here, processing of quantization, a shading compensation, MTF correction, variable power processing, etc. is mentioned to required image processing. Quantization is processing which changes into a binary or multi value data the analog data changed into the electrical signal by CCD.

A shading compensation is processing which amends the exposure spots of the light source which irradiates with a manuscript, and sensitivity dispersion of CCD.

[0022]MTF correction is processing which amends the Japanese quince by an optical system.

Variable power processing is processing which carries out a data interpolation using the image data which changed the reading density of the picture and read it.

Next, an image forming device and an image writing part are explained. The image forming device used with a digital copier or an image writing part is a device which forms in a regular paper, a thermal paper, etc. the picture images sent with the electrical signal by electro photography, heat sensitivity, hot printing, an ink jet, or other means.

[0023]Next, a video signal and image data are explained. The signal for taking the electrical signal of the picture changed with the image reader mentioned above, the electrical signal of a picture inputted into an image forming device and the electrical signal of a picture, and a synchronization is collectively expressed as a video signal or image data. Next, a control signal and a command are explained.

[0024]In order to exchange a video signal between an image reader, an image forming device, and application, it is necessary to transmit information mutually between devices. This means is expressed as a control signal or command issue. Next, expanded function, application (it is hereafter described as an application), a memory function, and a memory unit are explained.

[0025]A picture is changed into an electrical signal, and is read into the big feature of a digital copier, and an image forming device restores an electrical signal. At this time, it is applicable to fields other than the conventional analog copying machine by having a means to change and to transmit the read electrical signal

variously. Functions, such as FAX, a page printer, a scanner, and a file system, are realizable, and also these days, By once storing the read image data in memory storage, such as DRAM, at the time of execution of a duplication function, and reading image data if needed, at the time of two or more copies. The function (it is hereafter described as a memory function) etc. which perform two or more prints with one scan, or print two or more manuscripts on the transfer paper of one sheet are realized. These functions that can carry out digital copier system no one but realization are expressed as expanded function or an application.

[0026]In this invention, the memory unit is used also as a buffering means at the time of the image data transfer between the machinery on a network. Next, a system controller and a system are explained. When performing copying mode, in order to carry out image formation in an image writing part and to read a picture by surveillance inside the plane, such as paper logistics, electro photography process treatment, an abnormal condition, and sheet paper cassette states (existence of paper, etc.), and an image read section, The controller which controls scanner operation, ON/OFF of a light source, etc. is named generically, and it is expressed as a system controller.

[0027]It not only carries one expanded function, but in the latest digital copier, it carries out simultaneous loading of two or more applications increasingly. Thus, the digital copier which shares one resources may be expressed as a system, and the controller which controls this system may be expressed as a system controller. Next, resources and a resource are explained.

[0028]The functional unit unit shared from two or more applications is expressed as resources and a resource. The system controller mentioned above is performing system control in this resource unit. The resources managed with the digital copier of this example have an image reader, an

image forming device, a final controlling element, a memory, peripheral machines (ADF, a sorter, an automatic double-sided unit, etc.), etc.

[0029]Next, user restrictions are explained. Since especially the digital copier that is using the electrophotography process has many amounts of consumption, there is a case where he does not want to permit use indefinitely. In order to specify, limit and manage use at this time, user restriction apparatus, password cords, etc., such as a coin rack, a key counter, a keycard, and a prepaid card, are used.

[0030]Next, an user set is explained. When a system becomes complicated, the individual correspondence for every user is needed. Since it is difficult practically to satisfy all of these correspondences at the time of factory shipments, correspondence in a commercial scene becomes indispensable. Therefore, usually unvolatilized RAM is equipped, system construction according to a user's demand is performed, and this function is expressed as an user set.

[0031]Next, an idle state is explained. The state where operation by a user is not performed expresses the state where fixed time continuation was carried out as an idle state, and expresses the other state as a busy state. The time until it changes from a busy state to an idle state can perform an user set. For example, even if copying operation is completed, unless the non-operating condition by fixed time and a user continues that it is under [copying operation] of course, it does not change to an idle state.

[0032]Next, a body detecting sensor is explained. Drawing 1 is a figure showing the composition of a body detecting sensor. The body detecting sensor 1 consists of an infrared light-receiving sensor which detects the catoptric light of the optical system which restricts outgoing radiation of an infrared issue diode and infrared rays to a certain direction, and the discharged infrared rays, detects the object (operator) which is in constant distance from a sensor, and it is

constituted so that a signal may be sent to the main part control strip 2.

[0033]There is a detection distance change over switch in body detecting sensor 1 inside, and detection distance can be switched to two steps. By arranging the body detecting sensor 1 in the front face of an image forming device, it can be checked whether an operator is before a device. Next, a weekly timer is explained.

[0034]A weekly timer is set at the ON/OFF time set up for every day of the week, and means the function which turns on and off a power supply. In order to perform this function, the operation for carrying out matching the time of the clock module and operation of setting up ON/OFF time for every day of the week are required. Next, preheating is explained.

[0035]Preheating is the mode in which constant temperature, for example, by lowering 10 **, controlling and erasing a final controlling element display, saves power consumption for fixing temperature. Setting out in this mode is automatically set up after fixed time, after operation and operation are lost depending on the keystroke by a final controlling element, and machinery setting out. Release in this mode is canceled when the keystroke by a final controlling element and machinery setting out detect that people stood in front of machinery with the body detecting sensor.

[0036]Next, reloading is explained. The state where fixing temperature can reach and copy to the temperature which can be established is called reloading. Next, interruption mode is explained. Interruption mode is the mode when copying by sinking below copy work temporarily during copy operation execution and operation. If it is by setting up this mode in the middle of the copy mode before that, and a copy, that progress information will be memorized to unvolatilized RAM, it will shift to interruption mode, and the mode will be initialized.

[0037]If interruption mode is canceled after performing copy operation, the mode and the information which were

memorized to unvolatilized RAM can be returned, the state before interruption mode setting out can be returned, and the mode before interruption can be continued in a new start. Setting out/release in this mode can be performed by the key of a final controlling element. Next, DF (manuscript feeder) is explained.

[0038] Drawing 2 is a schematic diagram showing the composition of DF. DF separates one manuscript sheaf at a time, and says the device sent and set on contact glass. DF has two DC servo motors, a transportation motor and a delivery motor, and is making the feeding part, and reversal and a delivery unit become independent. It has an inversion mechanism in the pars inflexa and a delivery unit, and the one side copy of a double-sided manuscript can be performed now to them.

[0039] If it inserts until it puts a manuscript on the manuscript table 3 and dashes it lightly, the manuscript set detection apparatus 4 will detect a manuscript, and a manuscript insertion display will go out. Here, if the depression of the start key of a digital copier is carried out, a call solenoid and a feed spring electromagnetic clutch turn on. Next, a transportation motor turns on and paper is fed to a manuscript. At this time, the manuscript to which paper was fed sends one lowermost manuscript by the separation belt 5 and separation Collo 6.

[0040] Next, the manuscript which passed through separation Collo 6 detects manuscript size with resist detection / manuscript width detection apparatus 7, the pulse generator 8, and the manuscript length detection apparatus 9. And if the manuscript back end passes the resist detection device 7, the resist detection device 7 is turned off, and a transportation motor is turned off if it becomes the appointed pulse. Thereby, a transportation belt stops and a manuscript stops in the specified position.

[0041] Next, if reading of a manuscript picture is completed and a manuscript exchange signal is sent, a

transportation motor and a delivery motor will turn on and discharge of a manuscript and feeding of the following manuscript will be performed. In the case of a double-sided manuscript, there is a manuscript inversion mechanism which a manuscript passes [inversion mechanism] through a 1-time contact glass top, reverses a manuscript by the pars inflexa and a delivery unit, and makes a manuscript convey to up to contact glass again. Here, the manuscript number of sheets which can be set to the manuscript table 3 has restriction by an opening, a separation mechanism, etc. of an insert portion. At this time, if more than permission number of sheets sets, feed jam and a double feed will occur.

[0042]It is connected with a power supply from the main part of a digital copier by the communication line which transmits and receives a command, and to commands, such as feeding from a digital copier, and delivery, DF is combined, operates, and sends the state of DFs, such as manuscript existence. Here, in drawing 2, 10-16 are a manuscript scale, call Collo, a call lever, delivery Collo, a reversal switching claw, a reversal delivery detection apparatus, and reversal Collo respectively.

[0043]Next, CSS (a telediagnosis system or an image forming device managerial system) is explained.

Drawing 3 is a block diagram showing the composition of an image forming device managerial system. The controlling device 25 currently installed in the service base and the apparatus of digital copier 26 grade currently installed in user origin are connected via the public network 27.

[0044]The communication controlling device 28 for controlling communication with the controlling device 25 is installed in the user side. The digital copier 26 of user origin is connected to this communication controlling device 28.

The telephone 29 and the facsimile 30 can be connected now to the communication control 28.

Installation has become possible in the

form inserted in a user's existing circuit.

[0045]Although two or more digital copiers 26 can be connected to the communication controlling device 28, of course, there may be the singular number. These digital copiers 26 do not need to be of the same type, a different model is also available for them, and any apparatus other than digital copier 26 is also available for them. Here, it is considered as the thing of explanation which can connect a maximum of five digital copiers 26 to the one communication controlling device 28 for convenience. Multidrop connection of the communication controlling device 28 and two or more digital copiers 26 is carried out by RS-485 standard. Communications control between the communication controlling device 28 and each digital copier 26 is performed by the basic mode data transmission control procedure. By establishing a data link with the polling selecting mode of the centralized control which made the communication controlling device 28 the control station, communication with the arbitrary digital copiers 26 can be performed now. Each digital copier 26 can set up a peculiar value now with an address setting switch. The polling address of each digital copier 26 and a selecting address are determined by this.

[0046]Next, a final controlling element is explained. Drawing 4 is an outline view showing the composition of a final controlling element. The final controlling element of the example of a graphic display is constituted by the touch-panel key arranged on hardkeys, such as a ten key, or a liquid crystal. In drawing 4, 31 is a ten key which sets up a number of copied sheets etc., 32 is a liquid crystal display screen used as the touch panel which displays the state and message of operation, and 33 is a guidance key used when shifting to the mode which displays the method of explanation of a function, or operation. 34 is a program key used when performing the registration and the call

of setting out which are often used, 35 is an area processing key used when performing area specification or setting up the copy mode for every area, and 36 is a brilliance-control knob used when adjusting the luminosity of a liquid crystal display screen.

[0047]37 is the mode clearance and preheating / timer key used when performing cancellation of the set-up contents, and setting out which will be in a preheating state by the continuation depression beyond fixed time, and 38 is an interruption key used when interrupting during copy operation and copying another manuscript. Next, drawing 5 is a figure showing the composition of a touch-panel detector circuit. In drawing 5, 41 is a controller which controls the whole touch-panel detector circuit, and 42 is an A/D converter which changes an analog signal into a digital signal.

[0048]Since detection terminals are changed into a High state by the controller 41, it is set up based on the combination table showing aluminum, A2, B1, and B-2 in drawing 6 and pull-up of the circuit of B1 and B-2 is carried out, B1 is set to +5V at the time of the touch panel OFF, and it is set to 0V at the time of ON. For this reason, the state of ON/OFF is checked from the output of A/D converter 42.

[0049]The controller 41 will be switched to measuring mode, if the state of the touch panel ON is detected. A1 is set to +5V at the time of the direction of A, A2 is set to 0V, the potential of an input position is connected to A/D converter 42 through B1, and coordinates are computed. The coordinates of the direction of B also switch a circuit, it is computed similarly, and the depression position of a touch panel is detected.

[0050]Next, drawing 7 is a block diagram showing the composition of an operation part unit. In drawing 7, 45 is CPU which controls this whole final controlling element, 46 is an address latch, 47 is ROM, and 48 is the system reset connected to CPU45. 49 is an address decoder, 50 is a LED driver,

51 is a keyboard, and 52 is an LCD controller.

[0051] LED driver 50, the keyboard 51, the touch panel 53 of an analog, LCD module 54 and ROM55 for indicative datas, and RAM56 grade other than the address bus from CPU45 and a data bus are connected to LCD controller 52. The optical transceiver 57 which performs the exterior and serial communication is connected to CPU45.

[0052] In the above composition, the address signal from CPU45 is incorporated into the address latch 46, and is controlled by the signal from CPU45. The part is inputted into the address decoder 49, makes the chip select to each IC here, and uses the signal taken out by the address latch 46 for creation of a memory map. An address goes into memories and LCD controllers 52, such as ROM and RAM, and is used for addressing.

[0053] On the other hand, the data bus from CPU45 is connected to a memory or LCD controller 52, and two-way communication of data is performed. LCD controller 52 creates an indicative data from the stored data of ROM55 and RAM56 with the signal from the keyboard 51, and the signal from the touch panel 53, and controls the display to LCD module 54.

[0054] Drawing 8 is a figure showing the display example of a liquid crystal display screen. In drawing 8, the message area 61 where the upper left displays the message of "it can copy", "waiting", etc., and its right, The set number of sheets. The number-of-copied-sheets indicator 62 to display and the image concentration under it. The automatic concentration key 63 and transfer paper which are adjusted automatically. The automatic paper selection key 64 and copy which are chosen automatically. a part -- every -- page order -- the sort key 65 which specifies the processing to arrange, the stack key 66 which specifies the processing which classifies a copy for every page, the staple key 67 which specifies the processing which files a part of thing by which sorting application was carried out every, and

the actual size key which sets magnification to actual size. They are the manuscript coupled modes 71 which divide a lot of manuscripts into plurality, read them, and print them out collectively via the network of elimination / navigation key 70 which sets up the variable power key 68 which sets expansion/reducing magnification, the double-sided key 69 which sets up double-side mode, binding margin mode, etc., and a digital copier. As for the mode chosen, a shading indication of the key is given.

[0055] It is a figure showing a screen display which sets up whether drawing 9 is realized using DF of what digital copier at the time of manuscript coupled modes. What digital copier is chosen chooses by carrying out the depression of the keys 75a-75h of each digital copier. If setting out of what digital copier to use is completed and the depression of the setting-out termination key 76 will be carried out, it will become a screen of drawing 10 and the manuscript coupled modes 71 will be set up. When canceling these manuscript coupled modes 71, it will be canceled if the depression of the key 71 is carried out, and if the re-depression of the key 71 is carried out, it will become a screen display of drawing 9.

[0056] Next, drawing 11 is a figure showing the alarm display displayed on a final controlling element with other digital copiers, when manuscript coupled modes are set with an operation machine. This alarm display is a display for persons other than an operator to warn not to remove the manuscript which sets a manuscript or is set. Next, drawing 12 is a figure showing the alarm display displayed when the manuscript is not set to the manuscript stand with which it should be set at the time of manuscript coupled modes. Warning also performs the same display with the display at the time of a copy operation execution start in the middle of a copy. This screen is cleared in the depression of the confirmation key 77.

[0057]Next, drawing 13 is a figure showing a screen display of an user set in case a user's using form performs a change of operation. An user set can be set up by carrying out the depression of the continue key 78 and the interruption key 79, and it can escape from it from the screen of an user set with the termination key 80. How to this screen to enter will change to this screen, if 1 of a ten key and the key of 2 and 3 are pressed simultaneously.

[0058]Hereafter, the composition and operation of the example of this invention are explained using a drawing. Drawing 14 is a figure showing the system configuration of the digital copier of one example concerning this invention. As shown in drawing 14, the digital copier 85, It is constituted by the manuscript allowance device (ADF;Auto Document Feeder) 86, the final controlling element 87, the image reader 88, the image forming device 89, the double-sided unit 90, the delivery assortment equipment 91, the sheet paper cassette 92, the expanded function 93, and the user restriction apparatus 94.

[0059]The manuscript allowance device 86 is ***** one sheet at a time one by one to the image reader 88 automatically about the sheet manuscript of two or more sheets set to the manuscript stand. The final controlling element 87 has the LCD display and LCD display for providing a user with MMI (ManMachine Interface), and a key input section. The image reader 88 irradiates a manuscript sheet with the light made to emit light with a light source, By charge coupled device CCD (Charge Coupled Device), change the catoptric light into an electrical signal, and the image forming device 89, It forms in recording forms, such as a regular paper and a thermal paper, by image forming means, such as a photoelectric effect and the electro photography using an electrostatic absorption phenomenon, thermal recording which applies pulse form voltage and generates heat, and ink jet recording

which adds a deviation to the ink drop spouted from a nozzle. [picture images / which were sent out with the electrical signal]

[0060]The double-sided unit 90 shunts temporarily the recording form by which image formation was carried out to one side with the image forming device 89 when performing a double-sided copy. The rear surface of this recording form is reversed and paper is fed to the image forming device 89, and the delivery assortment equipment 91 has a sorting function and a stack function, and by a sorting function, the gather of the recording form to which paper was delivered is carried out to the order of delivery for every sheet, and it classifies the recording form to which paper was delivered for every page by a stack function. In order to feed paper the sheet paper cassette 92 to the recording form set to the lengthwise direction or the transverse direction, after setting to a cassette tray, it accepts necessity, and it is

***** one sheet at a time one by one.

[0061]The expanded function 93 are equipping with the ROM card and ROM cassette for providing the application according to the individual user's use, Make the read image data once memorize, and control to read image data if needed, for example, at the time of two or more copies.

Memory functions, such as a memory retention function to perform the print of two or more sheets with one scan, and a yne two one function which prints two or more manuscripts on one sheet of recording form, are realizable.

[0062]It is equipping with a coin rack, a key counter, a keycard, a prepaid card, etc., and specifying a user, or limiting, and the user restriction apparatus 94 is for managing the amount of consumption of a recording form, and is effective in the digital copier which is using the electrophotography process especially. Next, drawing 15 is a block diagram showing the composition of the digital copier of one example concerning this invention.

[0063]As shown in drawing 15, the digital copier 85 is constituted by the

system controller 101, the image read section 102, the image writing part 103, the memory unit 104, CSS105, the clock part 106, the user restriction apparatus 107, and the body detecting sensor 108. The system controller 101 controls each part based on the programmed control by internal CPU by making into a parameter the information for specifying, limiting / managing the user set as the user restriction apparatus 107, and existence of the existence of the operator detected by the body detecting sensor 108. The system controller 101 has internal RAM and once memorizes the operation information set up by the final controlling element 87.

[0064]The image read section 102 outputs image data, after adding image processing required for the electrical signal of the manuscript sheet read with the image reader 88. Image processing here changes into a binary or multi value data the analog data changed into the electrical signal by CCD, for example in quantization. In a shading compensation, sensitivity dispersion of the radiation unevenness of a light source or CCD with which a manuscript is irradiated is amended. The image blurring by an optical system is amended in MTF correction. In variable power processing, the data interpolation of the read image data is carried out, and the reading density of a picture is changed.

[0065]By an image forming means, the image writing part 103 forms picture images, and copies the inputted image data on recording forms, such as a regular paper and a thermal paper. As for the memory unit 104, the inside is constituted by the compressed block 109a, the DRAM (DynamicRandom Access Memory) block 109b, and the DMA (Direct Memory Access) block 109c. It elongates the compressed data to image data while compressing the inputted image data based on coding decoding systems, such as MH method, MR method, an MMR system, in order for the compressed block 109a to aim at improvement in the utilization ratio of DRAM block 109b.

DRAM block 109b stores temporarily the image data read in the image read section 102 at DRAM (Dynamic Random Access Memory). According to the demand from the system controller 101, the image data saved in the image writing part 103 is transmitted. The DMA (Direct Memory Access) block 109c transmits the inputted image data without the intervention of the system controller 101.

[0066] It has a monitoring facility which monitors the run state/condition of use of a digital copier from a remote place while notifying to a service center automatically, when an error occurs CSS105 in a digital copier. The clock part 106 notifies the system controller 101 that it became at specific time, in order to realize the weekly timer function at the time of performing the boot and shutdown of a program at the time of starting of a digital copier. A weekly timer function is a function which turns on and off a power supply according to the ON/OFF time set up for every day of the week.

In order to double the time of the clock part 106, operation of setting up ON/OFF time for every day of the week is required.

[0067] The user restriction apparatus 107 is for equipping with a coin rack, a key counter, a keycard, a prepaid card, etc., inputting the password card which performs specification and limitation of a user, and managing the amount of consumption of a recording form, and is effective in the digital copier which is using the electrophotography process especially. The body detecting sensor 108 detects the human body in constant distance, and sends out a detection signal to the system controller 101.

[0068] The memory unit 104 is required only when realizing a memory function, and only considering realizing the usual copy function, it is not [memory unit] necessary. The clock part 106 is required only when it becomes at a certain specific time, and realizing a

weekly timer function [shut / machinery / weekly timer function / boot or]. Only when the user has approached in front of machinery at the time of preheating mode and it realizes the function to cancel preheating mode automatically, the body detecting sensor 108 is required and CSS105. What is necessary is to equip, only when such a function is required since it is a function which notifies a service center automatically or monitors mechanical run state/ condition of use from a remote place when the error of the telediagnosis, i. e., machinery, occurs.

[0069]Control of image read section 102, image writing part 103, memory unit 104, and CSS105 is controlling only by 1CPU110 of the system controller 101. Drawing 16 is a block diagram showing the composition of the digital copier of one example concerning this invention.

[0070]As shown in drawing 16, the digital copier 85 is constituted by the system controller 111, the image read section 112, the image writing part 113, the memory unit 114, CSS115, the clock part 116, the user restriction apparatus 117, and the body detecting sensor 118. CPU119a, and 119b and 119c are respectively built in the image read section 112, the image writing part 113, and the memory unit 114 as a controller, and the command from the system controller 111 to each controller is constituted so that it may transmit with a controlling signal line. System hard structure is constituted arbitrarily.

The basic function is the same as that of the digital copier 85 shown in drawing 15.

[0071]Next, drawing 17 is a figure showing connection of the network system of the digital copier of one example concerning this invention. The example of a graphic display shows the example of a system of the network copy. Here, as shown in drawing 17, connect respectively, connect by network the eight digital copiers 85a-85h, and constitute the

network system of a digital copier, but. The number of the digital copier which this invention is not limited only to this and connected to a network should just be two or more sets.

[0072]Next, drawing 18 is a block diagram showing the composition which connected two digital copiers of one example concerning this invention via the network. The example of a graphic display shows the example of hard structure. As shown in drawing 18, the digital copiers 85a and 85b are constituted by the system controller 101, the image read section 102, the image writing part 103, the memory unit 104a, CSS105, the clock part 106, the user restriction apparatus 107, and the body detecting sensor 108. The system controller 101 of the digital copiers 85a and 85b, the image read section 102, the image writing part 103, CSS105, the clock part 106, the user restriction apparatus 107, and the body detecting sensor 108. Since it is the same as that of each part function of the digital copier 85 of drawing 15 mentioned above, the explanation is omitted.

[0073]Here, the memory unit 104a which constitutes the digital copiers 85a and 85b is explained. The memory unit 104a is constituted by DRAM block 109b, the compressed block 109a, DMA block 109c, and SCSI controller 121. It elongates the compressed data to image data while compressing the inputted image data based on coding decoding systems, such as MH method, MR method, and an MMR system, in order for the compressed block 109a to aim at improvement in the utilization ratio of DRAM block 109b.

[0074]DRAM block 109b stores image data temporarily at DRAM, and DMA block 109c transmits the inputted image data without the intervention of the system controller 101. The SCSI (Small Computer System Interface) controller 121 controls data transfer with the peripheral equipment connected to the daisy chain mode. In particular, in this example, SCSI is used as a network which connects

between two or more digital copiers.
[0075]As shown in drawing 18, although the hard structure of the digital copiers 85a and 85b has taken the composition of the approximately said appearance as what was shown by drawing 15. Since the image data from transmission or a network is saved on an external network at the DRAM block part 109b in the memory unit 104a, the picture read in the memory unit 104a, SCSI and SCSI controller 121 are used as a network means.
[0076]Various means, such as using TCP/IP communication of an OSI (Open System Interface) reference model for digital communications, can be considered using Ethernet as a physical means for example in a network communication means with a natural thing. Not only transmission of image data but transmission of control commands like the state notification of each machinery which exists on a network inside the plane, or the remote output command mentioned later, and a setting command is performed as mentioned above by using such composition.

[0077]It is made in order that the topology of two digital copiers shown in drawing 18 may give facilities to explanation, and this invention is not limited only to this and can be applied also to the network system of the digital copier shown in drawing 17 mentioned above, for example.

Drawing 19 is a block diagram showing the network software composition of the digital copiers 85a and 85b shown in drawing 18.

[0078]As shown in drawing 18, the network software of the digital copiers 85a and 85b is constituted by the three-tiered structure of the device control layer 125, the system control layer 126, and the application layer 127. The device control layer 125 is raya (device driver) which carries out logic / physical conversion of the data between the digital copier 85a and the digital copier 85b in input/output control.

[0079]Between the peripheral equipment connected to the daisy

chain mode, SCSI controller 121 manages the ID number of partner SCSI controller 121 set up individually, specifies an ID number, and controls data transfer.

It is widely used as an interface for small computer systems.

SCSI controller 121 communicates control commands and image data via the memory unit 104a.

[0080]Here, although constituted using SCSI controller 121, in this invention, a LAN controller can also be used instead of SCSI controller 121. TCP/IP (Transmission Control Protocol/Internet Protocol) software etc. are mentioned to a LAN controller.

[0081]The system controller 101 which constitutes the system control part which controls each part from which the system control layer 126 constitutes the system of the digital copiers 85a and 85b, It is constituted by the final controlling element controller 128, the peripheral machine controller 129, the image forming device controller 130, the image reader controller 131, and the memory unit 104a.

[0082]While the system controller 101 controls the paper logistics and electro photography process treatment for carrying out image formation by the image writing part 103 at the time of copying mode, While performing surveillance inside the plane, such as a sheet paper cassette state including detection of the existence of an abnormal condition or a recording form, the scanner operation for reading a picture, ON/OFF of a light source, etc. are controlled by the image read section 102.

[0083]The final controlling element controller 128 is raya performed with MMI and logical levels, such as a LCD display, LED lighting / putting out lights, a keystroke scan. The peripheral machine controller 129 is raya which performs control of the peripheral machine with which digital copiers, such as an automatic double-sided unit, a sorter, ADF, are equipped with a logical level. The image forming device controller 130 is raya controlled to form picture images, such as electro

photography, thermal recording, and ink jet recording, from image data. The image reader controller 131 is a raya which controls quantization, a shading compensation, MTF correction, variable power processing, etc. The memory unit 104a is a raya which controls compression processing, the setting processing of a DMA transfer, etc.

[0084]the application layer 125 -- a copy -- it is constituted by the application 132 and the daemon process 133. a copy -- the application 132 is application which performs copying operation based on a copy sequence. The daemon process 133 is application which reads the image data saved in the memory unit 104a, and transmits image data to the image writing part 103 of a self-opportunity, when a print request is requested from other digital copiers via a network.

[0085]Before the daemon process's 133 reading a picture from the memory unit 104a with a natural thing and performing print operation, the image transfer from other machinery on a network must be ended. Here, the final controlling element 87, a peripheral machine, the image forming device 89, the image reader 88, and the memory unit 104a are dealt with as a resource (resources) which a digital copier holds respectively. When the digital copier 85a performs copying operation using each own resource (at the time of a print start key depression), Each resource of a peripheral machine and the memory unit 104a is required of the system controller 101 which constitutes a system control part from the system controller 101 the image forming device 89, the image reader 88, or if needed.

[0086]the system controller 101 -- a copy -- arbitrating the royalty of a resource to the demand from the application 132 -- a copy -- the mediation result (use propriety) is notified to the application 132. the resource which a system holds in the case where the digital copier 85a is used by a stand-alone (when network connection is not carried out) -- all -- a copy -- since it is in the state where the

application 132 can be occupied, copying operation is performed immediately.

[0087]On the other hand, the resource of another machinery (it is hereafter described as a remote digital copier) which exists on a network is used like this example, and the royalty of a resource is required from the system controller of the remote digital copier which performs print operation. The system controller of a remote digital copier arbitrates a resource according to a demand, and notifies the result to the application of the machinery of a requiring agency. Application performs image transfer to the memory unit of the machinery of the remote output point via an external interface (this example SCSI), after performing reading of a picture and completing the image storage into an own memory unit, when a royalty is permitted.

[0088]After image transfer is completed and transmitting monograph affairs, such as a paper feed port for carrying out print execution to the daemon process of the machinery of the remote output point, a delivery port, and print number of sheets, a printing start command is transmitted. If the daemon process of the remote output point receives a printing start command, a printing start will be required from an own (machinery which performs a remote output) system controller, and a remote output will be performed by a system controller.

[0089]As shown in drawing 20 mentioned later and 21, when the memory unit 104a of the digital copier 85b is used by the digital copier 85a, When two or more digital copiers as show the digital copier 85b or drawing 17 the memory unit 104a of the digital copier 85b are connected on a network, use of the application of digital copiers other than digital copier 85a is improper.

[0090]The FGATE assertion command to drawing 20 and the system controller 101 -> daemon process 133 shown in 21, By the command published when the transfer paper by

which feed execution was carried out reaches a resist roller position, it is needed in order to synchronize the beginning position of the outputted image out of the tip part of a transfer paper, and the memory unit 104a.

Next, drawing 20 and 21 are the figures showing the operation flow of the digital copiers 85a and 85b of one example concerning this invention.

[0091]With reference to drawing 20 and 21, the image data read with the digital copier 85a is memorized to the memory unit 104a, Image data is transmitted to the image writing part 103 of the memory unit 104a of the digital copier 85b connected to the network, and the operation (remote output) copied from the image writing part 103 is explained. Drawing 20 and the memory request shown in 21 are the same control commands as the remote output demand showing being copied, after the digital copier 85a transmits the image data memorized by the memory unit 104a of the self-opportunity to the digital copier 85b and makes it memorize.

[0092]first, the copy of the digital copier 85a -- the application 132 publishes the memory request which requires use of the memory unit 104a of a self-opportunity of the system controller 101 of a self-opportunity. For example, if a picture is not sent to the digital copier 85b from the digital copier 85a when the digital copier 85a by the side of operation (self-opportunity) and the digital copier 85b of the other party copy every two-copy picture of a total of four sheets, Since the digital copier 85b of the other party cannot be copied, the resource demand of the memory unit 104a of a self-opportunity is performed. next -- the case where the memory unit 104a of a self-opportunity of the system controller 101 is a usable state -- licence -- a copy -- it returns to the application 132.

[0093]next, the copy of the digital copier 85a -- the application 132, An external memory using request is published to the system controller 101 of a self-opportunity, and a memory request is transmitted to SCSI

controller 121 of the digital copier 85b via the SCSI network 122 from SCSI controller 121 of the digital copier 85a. Subsequently, memory request ** is transmitted to the system controller 101 from SCSI controller 121 of the digital copier 85b.

[0094]The system controller 101 of the digital copier 85b which received this memory request ** publishes licence ** which permits use of the memory unit 104a to SCSI controller 121 of a self-opportunity, when the memory unit 104a of a self-opportunity is a usable state. Next, SCSI controller 121 of the digital copier 85b transmits this licence ** to SCSI controller 121 of the digital copier 85a via the SCSI network 122. Subsequently, SCSI controller 121 of the digital copier 85a is transmitted to the system controller 101 of a self-opportunity by making licence of the memory unit 104a of the digital copier 85b into external memory licence. subsequently, the copy from the system controller 101 of a self-opportunity -- this external memory licence is transmitted to the application 132.

[0095]Other digital copiers 85b connected to the network by communicating the licence of the memory unit 104a of the digital copier 85b, it becomes disable state ** which forbids use of the memory unit 104a of the digital copiers 85a and 85b, and competition of resource use is avoided. the case where the memory unit 89a of the digital copier 85b changes into a disable state -- the copy of the digital copier 85b, when a memory request is published from the application 132, the memory use failure which means that the memory unit 104a cannot be used since the memory unit 104a of the self-opportunity is in the disable state from the system controller 101 -- a copy -- it publishes to the application 132.

[0096]next, the copy of the digital copier 85a which obtained external memory licence -- the application 132 sets the writing destination head address and the amount of data transmitting of DRAM block 109b as the DMA unit of the memory unit 104a. Thus, the memory unit 104a of a

self-opportunity is set as the waiting state which image data can transmit. next, a copy -- the application 132 turns on the scanner operation for reading a picture, and a light source in the image read section 102, and makes it read a picture one by one while it publishes the image reading start which starts reading of image data to the memory unit 104a of a self-opportunity. Thus, the image data outputted from the image read section 102 is transmitted and written in the memory unit 104a of the digital copier 85a.

[0097]next, the copy of the digital copier 85a which received the end of image reading from the image read section 103 -- the application 132 publishes the end of reading of image data to the memory unit 104a of a self-opportunity. the memory unit 104a which received this end of image reading -- the copy of a self-opportunity -- the end of reading of image data is published to the application 132. next, the copy which received this end of reading -- the application 132 publishes the image transfer demand which requires transmission of the image data memorized by the memory unit 104a of the self-opportunity.

[0098]Next, SCSI controller 121 of the digital copier 85a which received this image transfer demand, Transmission is started so that the image data recorded on the memory unit 104a of the digital copier 85a may be written in the memory unit 104a of the digital copier 85b via the SCSI network 122. Here, when transmission of the image data memorized by the memory unit 104a of the digital copier 85a is completed, the end of transmission is published to SCSI controller 121 of the digital copier 85b.

[0099]next, SCSI controller 121 of the digital copier 85a -- the copy of a self-opportunity -- the end of transmission is published to the application 132. next, the copy of the digital copier 85a which received this end of transmission -- the application 132 publishes the parameter which set up a paper feed port, a delivery port, print

number of sheets, etc. to SCSI controller 121 in order to make the digital copier 85b start print operation. Subsequently, this parameter is transmitted to SCSI controller 121 of the digital copier 85b from SCSI controller 121 of the digital copier 85a.

[0100]Next, SCSI controller 121 of the digital copier 85b is set as the daemon process 133 of this parameter self-opportunity. The daemon process 133 of the digital copier 85b sets this parameter as the system controller 85b of a self-opportunity, after acquiring required parameters, such as a paper feed port, a delivery port, and print number of sheets, from this parameter.

[0101]Next, the copy of the digital copier 85a -- the application 132 publishes a printing start command to SCSI controller 121 in order to make the digital copier 85b start print operation. Subsequently, this printing start command is transmitted to SCSI controller 121 of the digital copier 85b from SCSI controller 121 of the digital copier 85a.

[0102]Next, SCSI controller 121 of the digital copier 85b sets this printing start command as the daemon process 133 of a self-opportunity. The daemon process 133 of the digital copier 85b publishes this printing start command to the system controller 101 of a self-opportunity based on this printing start command. Next, the system controller 101 of the digital copier 85b which received this printing start command starts feeding of a transfer paper from the paper feed port directed from the daemon process 133, in order to start print operation according to a printing start command. Subsequently, the system controller 101 publishes the feed start showing having started feeding of the transfer paper from a paper feed port to SCSI controller 121 through the daemon process 133.

[0103]Next, SCSI controller 121 transmits this feed start to SCSI controller 121 of the digital copier 85a. subsequently, SCSI controller 121 of the digital copier 85a -- a copy -- the feed start received in the application 132 is transmitted. Next, in the digital copier 85b, if the transfer paper to

which paper was fed arrives at an image formation start position (resist roller position), it will publish a FGATE assertion allow command to the daemon process 133 of the digital copier 85b. The daemon process 133 which obtained this FGATE assertion allow command, Requiring the image data transfer to the image writing part 103 from SCSI controller 121 of the digital copier 85b, SCSI controller 121 starts transmission of image data to the image writing part 103.

[0104]The system controller 101 of the digital copier 85b will notify delivery execution to the daemon process 133 of the digital copier 85b, if paper is delivered to a transfer paper.

Subsequently, the daemon process 133 which received this delivery execution publishes delivery execution to SCSI controller 121. Subsequently, SCSI controller 121 transmits this delivery execution to SCSI controller 121 of the digital copier 85a. subsequently, SCSI controller 121 of the digital copier 85a -- a copy -- the delivery execution received in the application 132 is transmitted.

[0105]receiving this delivery execution -- the copy of the digital copier 85a -- the application 132 publishes external memory resource opening to SCSI controller 121 of a self-opportunity. Subsequently, SCSI controller 121 of the digital copier 85a transmits external memory resource release to SCSI controller 121 of the digital copier 85b via the SCSI network 122. Subsequently, external memory resource release is transmitted to the system controller 101 from SCSI controller 121 of the digital copier 85b.

[0106]In drawing 20 and 21, only the flow which makes the image data read by the image read section 102 of the digital copier 85a output to the image writing part 103 of the digital copier 85b is explained. However, after transmission of image data is completed to the memory unit 104a of the digital copier 85a to the digital copier 85b. The digital copier 85a and the digital copier 85b, Since it can completely operate independently, when having started print operation

with the digital copier 85b, the digital copier 85a can transmit the image data memorized by the memory unit 104a of the self-opportunity to the image writing part 103 of a self-opportunity, and can carry out print operation.

[0107]It remained in having described information only indispensable for the operation which performs a remote output with the digital copier 85b in drawing 20 and 21. However, in actually using the peripheral machine etc. of the digital copier which exists in a remote place, while requiring only the royalty of a memory unit of a digital copier, it is necessary to double and carry out the using request also of the peripheral machine resource. When using the delivery assortment equipment 91 which performs a sorter function especially, when mediation of a royalty is insufficient, In the delivery port of the digital copier 85b, the fault of the output paper of the remote output from the digital copier 85a and the output paper (transfer paper) of the digital copier 85b being intermingled will occur.

[0108]Next, drawing 22 is a figure showing the operation flow of mediation processing of two digital copiers of one example concerning this invention. The memory requests shown in drawing 22 are the same control commands as the remote output demand showing making copy, after the digital copier 85a transmits the image data memorized by the memory unit 104a of the self-opportunity to the digital copier 85b and makes it memorize.

[0109]first, the copy of the digital copier 85a -- the application 132 publishes the memory request which requires use of the memory unit 104 of a self-opportunity of the system controller 101 of a self-opportunity. next -- the case where the memory unit 104a of a self-opportunity of the system controller 101 is a usable state -- licence -- a copy -- it returns to the application 132. next, the copy of the digital copier 85a -- the application 132 publishes an external memory using request to the system controller 104 of a self-opportunity, ranks second

to it, and publishes an external memory using request from the system controller 101 to SCSI controller 121. Subsequently, a memory request is transmitted to SCSI controller 121 of the digital copier 85b via the SCSI network 122 from SCSI controller 121 of the digital copier 85a. Subsequently, memory request ** is transmitted to the system controller 101 from SCSI controller 121 of the digital copier 85b. [0110]The system controller 101 of the digital copier 85b which received this memory request ** performs mediation processing according to a system-usage situation, and publishes mediation result ** to SCSI controller 121 of a self-opportunity. Subsequently, SCSI controller 121 of the digital copier 85b transmits this mediation result to SCSI controller 121 of the digital copier 85a via the SCSI network 122.

[0111]Next, SCSI controller 121 of the digital copier 85a transmits the mediation result of the memory unit 104a of the digital copier 85b to the system controller 101 of a self-opportunity. subsequently, the copy from the system controller 101 of a self-opportunity -- this mediation result is transmitted to the application 132. Thus, the system controller 101 of the digital copier 85b, Since mediation processing will be performed according to the operating condition of a system and mediation result ** will be replied to the digital copier 85a as a result of the mediation processing if memory request ** is received from the digital copier 85a. As shown in drawing 20 and 21, the licence of the memory unit 104a of the digital copier 85b may be replied as a mediation result. On the other hand, when use refusal is replied as a mediation result, the digital copier 55a continues copy processing only using the resource which interrupts remote output processing or is held with the digital copier 85a.

[0112]The operation flow which performs transmission and a print (remote output) for the picture read with the digital copier 85a to the image forming device of the digital copier

85b is shown in them as mentioned above in drawing 20 and 21, but. It becomes effective from it that a remote output becomes possible, only when licence (drawing 20, command of ** of 21) is given from the digital copier 85a from a system controller to the memory request (drawing 20, command of ** of 21) to the digital copier 85b.

[0113]Namely, as shown in drawing 22, the system controller 66 of the digital copier 85a, If a memory request (command of ** of drawing 22) is received from the digital copier 85a, as shown in drawing 22, mediation processing will be performed according to the operating condition of a system, and the result (command of ** of drawing 22) of the mediation processing will be replied to the digital copier 85b.

[0114]A royalty demand may be refused, if the royalty demand of the memory unit 104a of the digital copier 85b may be permitted as a result of mediation as shown in drawing 21 and 22 with a natural thing. When a demand of a royalty is refused, the digital copier 85a continues processing only using the resource which interrupts processing or is held in person.

[0115]Although drawing 20 and 21 have indicated only information indispensable at the time of the operation which only performs a remote output, to use the peripheral machine of a remote digital copier, etc., it is actually necessary for it to be necessary not only to require only the royalty of a memory of a remote digital copier, but to require a peripheral machine remote collectively. In particular, about use of delivery assortment equipment (sorter), the fault of the output paper (transfer paper) of the digital copier 85a and the digital copier 85b being intermingled by a delivery port as mediation is insufficient occurs.

[0116]Next, drawing 23 - drawing 31 are flow charts which show the process flow of manuscript coupled-modes operation of one example concerning

this invention. In this example, as shown in drawing 23, manuscript coupled modes are set up first (Step S1). When a copy button is pushed and it is [copy operation] under execution, (Step S2). If a manuscript is before the digital copier 85a is set up (Step S3) and manuscript feeding operation is completed with the digital copier whose it is not a self-opportunity (step S4-S6). The digital copier 85a (remote machine) performs manuscript feeding operation as it is, reads a manuscript, and outputs a picture (Step S7).

[0117]On the other hand, the manuscript is not placed by the digital copier 85a (Step S6), and when it is during manuscript feeding operation (Step S8), the digital copier 85a ends manuscript feeding operation (step S9). The manuscript is not placed by the digital copier 85a, when it is not manuscript feeding operation Naka (Step S8), discontinuation setting out is carried out (Step S10), and the alarm display of the copy operation is interrupted and (Step S11) carried out (Step S12). When not carrying out discontinuation setting out (Step S10), the digital copier 85a ends manuscript feeding operation (step S9).

[0118]When manuscript coupled modes are set up (Step S1), a copy button is pushed and it is [copy operation] under execution, next, the (step S2). Without setting up the digital copier 85a (Step S3), as shown in drawing 24. If a manuscript is before the digital copier 85b is set up (Step S13) and manuscript feeding operation is completed with the digital copier whose it is not a self-opportunity (Steps S14-S16). The digital copier 85b (remote machine) performs manuscript feeding operation as it is, reads a manuscript, and outputs a picture (Step S17).

[0119]On the other hand, the manuscript is not placed by the digital copier 85b (Step S16), and when it is during manuscript feeding operation (Step S18), the digital copier 85b ends manuscript feeding operation (Step S19). The manuscript is not placed by the digital copier 85b, when it is not

manuscript feeding operation Naka (Step S18), discontinuation setting out is carried out (Step S20), and the alarm display of the copy operation is interrupted and (Step S21) carried out (Step S22). When not carrying out discontinuation setting out (Step S20), the digital copier 85b ends manuscript feeding operation (Step S19).

[0120]When manuscript coupled modes are set up (Step S1), a copy button is pushed and it is [copy operation] under execution, next, the (step S2), Without setting up the digital copiers 85a and 85b (Step S13), As shown in drawing 25, the digital copier 85c is set up (Step S23), If a manuscript is before manuscript feeding operation is completed with the digital copier whose it is not a self-opportunity (Steps S24-S26), the digital copier 85c (remote machine) will perform manuscript feeding operation as it is, will read a manuscript, and will output a picture (Step S27).

[0121]On the other hand, the manuscript is not placed by the digital copier 85c, and when it is during manuscript feeding operation (Step S28), the digital copier 85c ends manuscript feeding operation (Step S30). The manuscript is not placed by the digital copier 85c, when it is not manuscript feeding operation Naka (Step S28), discontinuation setting out is carried out (Step S29), and the alarm display of the copy operation is interrupted and (Step S31) carried out (Step S32). When not carrying out discontinuation setting out (Step S29), the digital copier 85c ends manuscript feeding operation (Step S30).

[0122]When manuscript coupled modes are set up (Step S1), a copy button is pushed and it is [copy operation] under execution, next, the (step S2), Without setting up the digital copiers 85a-85c (Step S3, S13, S23), As shown in drawing 26, the digital copier 85d is set up (Step S33), If a manuscript is before manuscript feeding operation is completed with the digital copier whose it is not a self-opportunity (Steps S34-S36), the digital copier 85d (remote machine)

will perform manuscript feeding operation as it is, will read a manuscript, and will output a picture (Step S37).

[0123]On the other hand, the manuscript is not placed by the digital copier 85d (Step S36), and when it is during manuscript feeding operation (Step S38), the digital copier 85d ends manuscript feeding operation (Step S39). The manuscript is not placed by the digital copier 85d, when it is not manuscript feeding operation Naka (Step S38), discontinuation setting out is carried out (Step S40), and the alarm display of the copy operation is interrupted and (Step S41) carried out (Step S42). When not carrying out discontinuation setting out (Step S40), the digital copier 85d ends manuscript feeding operation (Step S39).

[0124]When manuscript coupled modes are set up (Step S1), a copy button is pushed and it is [copy operation] under execution, next, the (step S2), Without setting up the digital copiers 85a-85d (Step S3, S13, S23, S33), As shown in drawing 27, the digital copier 85e is set up (Step S43), If a manuscript is before manuscript feeding operation is completed with the digital copier whose it is not a self-opportunity (Steps S44-S46), the digital copier 85e (remote machine) will perform manuscript feeding operation as it is, will read a manuscript, and will output a picture (Step S47).

[0125]On the other hand, the manuscript is not placed by the digital copier 85e (Step S46), and when it is during manuscript feeding operation (Step S48), the digital copier 85e ends manuscript feeding operation (Step S49). The manuscript is not placed by the digital copier 85e, when it is not manuscript feeding operation Naka (Step S48), discontinuation setting out is carried out (Step S50), and the alarm display of the copy operation is interrupted and (Step S51) carried out (Step S52). When not carrying out discontinuation setting out (Step S50), the digital copier 85e ends manuscript feeding operation (Step S49).

[0126]When manuscript coupled

modes are set up (Step S1), a copy button is pushed and it is [copy operation] under execution, next, the (step S2). Without setting up the digital copiers 85a-85e (Step S3, S13, S23, S33, S43). As shown in drawing 28, the digital copier 85f is set up (Step S53). If a manuscript is before manuscript feeding operation is completed with the digital copier whose it is not a self-opportunity (Steps S54-S56), the digital copier 85f (remote machine) will perform manuscript feeding operation as it is, will read a manuscript, and will output a picture (Step S57).

[0127]On the other hand, the manuscript is not placed by the digital copier 85f, and when it is during manuscript feeding operation (Step S58), the digital copier 85f ends manuscript feeding operation (Step S59). The manuscript is not placed by the digital copier 85f, when it is not manuscript feeding operation Naka (Step S58), discontinuation setting out is carried out (Step S60), and the alarm display of the copy operation is interrupted and (Step S61) carried out (Step S62). When not carrying out discontinuation setting out (Step S60), the digital copier 85f ends manuscript feeding operation (Step S59).

[0128]When manuscript coupled modes are set up (Step S1), a copy button is pushed and it is [copy operation] under execution, next, the (step S2). Without setting up the digital copiers 85a-85f (Step S3, S13, S23, S33, S43, S53). If a manuscript is before the digital copier 85g is set up (Step S63) and manuscript feeding operation is completed with the digital copier whose it is not a self-opportunity (Steps S64-S66). The digital copier 85g (remote machine) performs manuscript feeding operation as it is, reads a manuscript, and outputs a picture (Step S67).

[0129]On the other hand, the manuscript is not placed by the digital copier 85g (Step S66), and when it is during manuscript feeding operation (Step S68), the digital copier 85g ends manuscript feeding operation (Step S70). The manuscript is not placed by

the digital copier 85g, when it is not manuscript feeding operation Naka (Step S68), discontinuation setting out is carried out (Step S70), and the alarm display of the copy operation is interrupted and (Step S71) carried out (Step S72). When not carrying out discontinuation setting out (Step S69), the digital copier 85g ends manuscript feeding operation (Step S70).

[0130]When manuscript coupled modes are set up (Step S1), a copy button is pushed and it is [copy operation] under execution, next, the (step S2). Without setting up the digital copiers 85a-85g (Step S3, S13, S23, S33, S43, S53, S63). If a manuscript is before the digital copier 85h is set up (Step S73) and manuscript feeding operation is completed with the digital copier whose it is not a self-opportunity (Steps S74-S76). The digital copier 85h (remote machine) performs manuscript feeding operation as it is, reads a manuscript, and outputs a picture (Step S77).

[0131]On the other hand, the manuscript is not placed by the digital copier 85h (Step S76), and when it is during manuscript feeding operation (Step S78), the digital copier 85h ends manuscript feeding operation (Step S79). The manuscript is not placed by the digital copier 85h, when it is not manuscript feeding operation Naka (Step S78), discontinuation setting out is carried out (Step S80), and the alarm display of the copy operation is interrupted and (Step S81) carried out (Step S82). When not carrying out discontinuation setting out (Step S80), the digital copier 85h ends manuscript feeding operation (Step S79).

[0132]When manuscript coupled modes are set up (Step S1), a copy button is pushed and it is [copy operation] under execution, next, the (step S2). Without setting up the digital copiers 85a-85h (Step S3, S13, S23, S33, S43, S53, S63, S73). When the digital copier of a self-opportunity is set up (Step S83) and a manuscript has it in the digital copier of a self-opportunity (Step S84), the digital copier 85h (remote machine) performs

manuscript feeding operation, reads a manuscript, and outputs a picture (Step S85).

[0133]On the other hand, the manuscript is not placed by the digital copier of a self-opportunity (Step S84), and when the digital copier of a self-opportunity is during manuscript feeding operation (Step S86), the digital copier of a self-opportunity ends manuscript feeding operation (Step S87), and ends operation of a copy (Step S88). The manuscript is not placed by the digital copier of a self-opportunity (Step S84), and (Step S86) and when it is not manuscript feeding operation Naka, and carrying out discontinuation setting out (Step S89), the alarm display of the copy operation is interrupted and (Step S90) carried out (Step S91). When not carrying out discontinuation setting out (Step S89), the digital copier of a self-opportunity ends manuscript feeding operation (Step S87), and ends copy operation (Step S88).

[0134]Next, drawing 32 - 34 are flow charts which show the check process flow for the manuscript continuous shooting mode at the time of the copy start of one example concerning this invention. In this example, if a copy operation starting request occurs (Step S101) and discontinuation setting out is first carried out with the manuscript continuous shooting mode (Step S102, S103), a discontinuation RQ (REQUEST) flag will be set (Step S104). On the other hand, copy operation is started, when there is no copy operation starting request (Step S101), or when [which is not a manuscript continuous shooting mode] not carrying out a case (Step S102) or discontinuation setting out (Step S103) (Step S105).

[0135]Next, after a discontinuation RQ flag set (Step S104), if the manuscript is not placed by the digital copier 85a in spite of having set up the digital copier 85a (Step S105, S106), a digital-copier-85-a-manuscript-less warning discontinuation RQ flag will be set (Step S107). Next, after a digital-copier-85-a-manuscript-less discontinuation RQ flag set (Step

S107), Or when the digital copier 85a is not set up (Step S105), Or when the digital copier 85a has a manuscript (Step S106), If the manuscript is not placed by the digital copier 85b in spite of having set up the digital copier 85b (Step S108, S109), a digital-copier-85-b-manuscript-less warning discontinuation RQ flag will be set (Step S110).

[0136]Next, after a digital-copier-85-b-manuscript-less discontinuation RQ flag set (Step S110), Or when the digital copier 85b is not set up (Step S108), Or when the digital copier 85b has a manuscript (Step S109), If the manuscript is not placed by the digital copier 85c in spite of having set up the digital copier 85c (Step S111, S112), a digital-copier-85-c-manuscript-less warning discontinuation RQ flag will be set (Step S113).

[0137]Next, after a digital-copier-85-c-manuscript-less discontinuation RQ flag set (Step S113), Or when the digital copier 85c is not set up (Step S111), Or when the digital copier 85c has a manuscript (Step S112), If the manuscript is not placed by the digital copier 85d in spite of having set up the digital copier 85d (Step S114, S115), a digital-copier-85-d-manuscript-less warning discontinuation RQ flag will be set (Step S116).

[0138]Next, after a digital-copier-85-d-manuscript-less discontinuation RQ flag set (Step S116), Or when the digital copier 85d is not set up (Step S114), Or when the digital copier 85d has a manuscript (Step S115), If the manuscript is not placed by the digital copier 85e in spite of having set up the digital copier 85e (Step S117, S118), a digital-copier-85-e-manuscript-less warning discontinuation RQ flag will be set (Step S119).

[0139]Next, after a digital-copier-85-e-manuscript-less discontinuation RQ flag set (Step S119), Or when the digital copier 85e is not set up (Step S117), Or when the digital copier 85e has a manuscript (Step S118), If the manuscript is not placed by the digital copier 85f in spite of having set up the digital copier 85f (Step S120, S121), a digital-copier-85-f-manuscript-less

warning discontinuation RQ flag will be set (Step S122).

[0140]Next, after a digital-copier-85-f-manuscript-less discontinuation RQ flag set (Step S122), Or when the digital copier 85f is not set up (Step S120), Or when the digital copier 85f has a manuscript (Step S121), If the manuscript is not placed by the digital copier 85g in spite of having set up the digital copier 85g (Step S123, S124), a digital-copier-85-g-manuscript-less warning discontinuation RQ flag will be set (Step S125).

[0141]Next, after a digital-copier-85-g-manuscript-less discontinuation RQ flag set (Step S125), Or when the digital copier 85g is not set up (Step S125), Or when the digital copier 85g has a manuscript (Step S126), If the manuscript is not placed by the digital copier 85h in spite of having set up the digital copier 85h (Step S126, S127), a digital-copier-85-h-manuscript-less warning discontinuation RQ flag will be set (Step S128).

[0142]Next, after a digital-copier-85-h-manuscript-less discontinuation RQ flag set (Step S128), Or if the discontinuation RQ flag is set when the digital copier 85h is not set up (Step S126), or when the digital copier 85h has a manuscript (Step S127) (Step S129), a copy operation start will be suspended (Step S130). Copy operation is started when the discontinuation RQ flag is not set (Step S129) (Step S131). When it is [copy operation] under execution by manuscript coupled modes like the process flow of the manuscript coupled-modes operation of drawing 23 - drawing 31 mentioned above, this processing is performed, and in order to process processing by the agreement of performing preferentially, from the smaller one of a copying machine number, it performs from the digital copier 85a. Execution order is beforehand inputted in a final controlling element, and it may be made to perform it in the order.

[0143]Here, flexibility was stopped and operativity was thought as important. It will not process, if it is a self-opportunity in order to process a

self-opportunity (operation machine) at the end from the viewpoint which shortens occupation time of the machinery which carries out remote operation of the operation machine. If manuscript feeding operation is not completed and there is a manuscript, manuscript feeding operation will be performed and a generating picture will be carried out for picture reading with the printer of *****. While there is no manuscript and manuscript feeding operation is performed, it judges that the manuscript was lost since paper was fed to the manuscript, and the manuscript of the machinery was lost, and memorizes that the manuscript feeding operation of the machinery was completed.

[0144]If it judges that there was no manuscript from the beginning to the machine and discontinuation setting out is carried out in the user set when there is no manuscript and manuscript feeding operation has not been carried out, copy operation will be interrupted and the alarm display for reporting that there is no manuscript in the machinery will be performed. It is made to shift to the end of manuscript feeding operation compulsorily at the time of continuous setting out instead of discontinuation setting out, it skips this machinery by which mode setting is carried out, and continues processing. Even the digital copier 85h which exists by this example performs these processings.

[0145]Finally the manuscript of a self-opportunity (operation machine) is processed. Although processing is the same as other digital copiers, when finishing carrying out manuscript feeding, it ends copy operation. Except a stage, the image output processing under this processing reads a manuscript with a remote machine, and through a connecting interface, picture transmission is carried out and it is printed out by the operation machine. A self-opportunity is processed in the self-inside of a plane. [0146]Next, a copy operation starting request occurs like the check process flow for the manuscript continuous shooting mode at the time of the copy

start mentioned above, and with a manuscript continuous shooting mode, when an user set is not discontinuation setting out at the time of manuscript nothing, copy operation is started without carrying out this processing. First, if the discontinuation RQ flag for memorizing while processing not carrying out copy operation execution is reset, the digital copier 85a is set up as a candidate for manuscript feeding of a manuscript continuous shooting mode and there is no manuscript in the manuscript stand of a digital copier, Manuscript-less warning of the digital copier 85a is performed, and a discontinuation RQ flag is set. Even the digital copier 85h performs these processings.

[0147]In each alarm display, a digital copier without a manuscript is packed with the digital copier set up, and it is indicating all in common pictures (refer to the alarm display of the final controlling element explanation mentioned above). It is made to stop, if the discontinuation RQ flag is finally set without starting copy operation. Copy operation is started if the flag is not set. Thus, this example (claim 1) has a manuscript sheet feeding device in each digital copier. It constitutes so that the manuscript set in the manuscript sheet feeding device of the digital copier on the network of different others from the manuscript set in the manuscript sheet feeding device of the digital copier by the side of an operation machine and an operation machine may be automatically processed as a series of manuscripts.

[0148]For this reason, when copying the number of sheets which sets to one set of DF and does not go out, the manuscript which divided all the manuscripts into some DFs, set them, and was divided and set to each DF is read automatically. Since print operation can be performed with one printer, the operativity and working efficiency at the time can be raised. [manuscript / especially with much number of sheets] Between the manuscripts especially divided like one side -> double-side mode, when

relation is important, a copy mistake can be prevented by easy operation. [0149]This example (claim 2) is constituted so that the manuscript set in the manuscript sheet feeding device of digital copiers other than an operation machine may be processed preferentially. For this reason, since the manuscript of digital copiers other than an operation machine can be processed preferentially, occupation time of the copy machine used in a remote can be lessened as much as possible. Therefore, since the operation efficiency of the whole system can be raised, a system with high efficiency is realizable.

[0150]When there is no manuscript in the digital copier set up if a manuscript is processed, this example (claim 3) is constituted so that it may skip automatically as what is not set up from the first and may operate. For this reason, since it can skip automatically as what is not set up from the first and can operate when there is no manuscript in the digital copier set up if a manuscript is processed, It prevents from stopping operation rather than displaying warning etc. conversely, and the person who became skillful in operation can be operated, without recarrying out mode setting, when DF whose actual manuscript number of sheets of what mode setting carried out is unnecessary occurs, and workability can be improved efficiently. And since it can finish without preparing an alarm display etc., the cost cut of an indicator can be aimed at.

[0151]When there is no manuscript in the digital copier set up if a manuscript is processed and there is a manuscript stand which checks the set of a manuscript at the time of operation execution, and is not set, it constitutes from this example (claim 4) so that it may warn without performing operation. For this reason, since it can warn without performing operation when there is a manuscript stand which checks the set of a manuscript at the time of operation execution, and is not set, a manuscript set mistake can be prevented beforehand and

miscopying can be prevented. The order of a copy is out of order especially, and it is effective especially at the times, such as one side -> double-side mode.

[0152]When starting manuscript feeding with each digital copier after operation execution, and the set of a manuscript is checked and it is not set, this example (claim 5) is constituted so that it may interrupt and warn of operation. For this reason, since it can interrupt and warn of operation when starting manuscript feeding with each digital copier after operation execution, and the set of a manuscript is checked and it is not set, miscopying by what will remove the manuscript by persons other than an operator can be prevented. The order of a copy is out of order especially, and it is effective especially at the times, such as one side -> double-side mode.

[0153][This example (claim 6) is constituted so that the system concerning the invention according to claim 3 and the system concerning the invention according to claim 4 may be changed. For this reason, since the system of claims 3 and 4 can be changed suitably, operational operation can be suitably chosen according to a using form, and operativity can be raised efficiently. When digital copiers other than an operation machine perform manuscript feeding, this example (claim 7) is constituted so that it may report that the remote control of the manuscript is carried out.

[0154]For this reason, since it can report that the remote control of the manuscript is carried out when digital copiers other than an operation machine perform manuscript feeding, an operation mistake can be prevented.

[0155]

[Effect of the Invention]When copying the number of sheets which sets to one set of DF and does not go out according to this invention, print operation can be performed for the manuscript which divided all the manuscripts into some DFs, set them, and was divided and set to each DF with one printer, and it is effective in

the ability to raise operativity and working efficiency.

[Translation done.]